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G08B 5/36 // G09F 9/35

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(56) Documents Cited

GB 2135536 A US 4514725 A US 4237449 A

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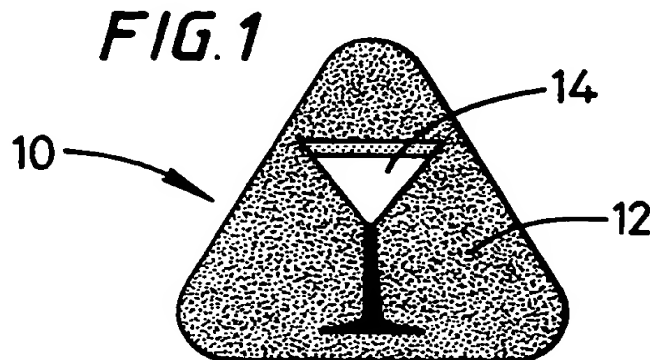
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(54) Abstract Title

**Acoustically activated device**

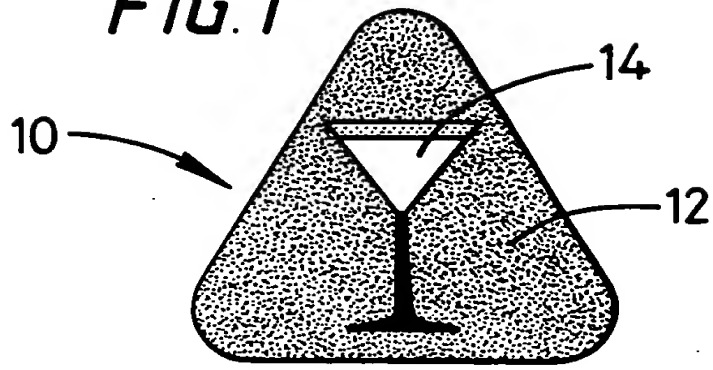
(57) A marketing device for displaying predefined information in response to a predefined signal being detected. The device is obtained from a retailer and worn as a badge while at the cinema or while listening to the radio or TV. When a specific advert is broadcast the badge interprets part of the sound track and activates the display on the badge. The displayed information may be an advertisement or a message. The predefined signal may be broadcast by a commercial broadcasting means, such as a television or radio.



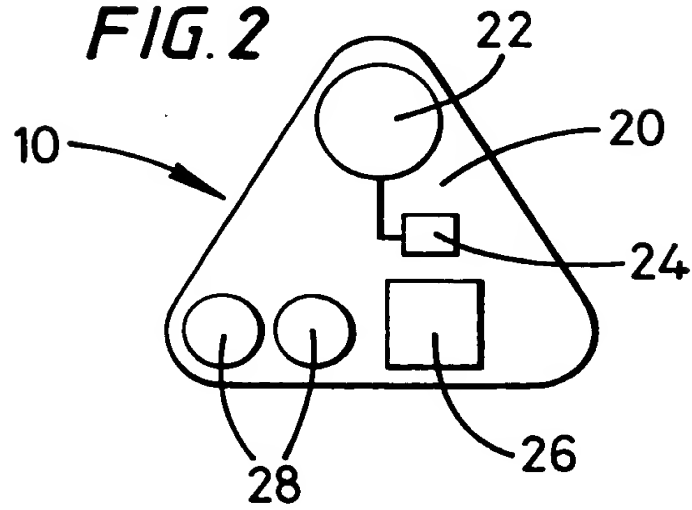
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**FIG. 1**



**FIG. 2**



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## ACOUSTICALLY ACTIVATED MARKETING DEVICE

The present invention relates to an acoustically activated marketing device.

The consumer obtains the device from a retailer. He/she wears the device as a badge while at the cinema or while listening to the radio or TV. When a specific advert is broadcast the badge interprets part of the sound track and activates the display on the badge.

According to the present invention there is provided apparatus for displaying information, said apparatus including receiving means arranged to receive a signal, activation means arranged to compare said received signal with a predefined signal and upon said received signal matching said predefined signal cause a display means to display predefined information.

Said received signal may be an acoustic signal.

Said receiving means may be a microphone.

According to an aspect of the present invention said received signal is in digital format.

According to a further aspect of the present invention said received signal is transmitted over the internet.

According to a further aspect of the present invention said received signal is broadcast by a commercial broadcasting means.

Said commercial broadcasting means may be a television broadcasting means. Alternatively, said commercial broadcasting means may be a radio broadcasting means. Alternatively, said commercial broadcasting means may be a cinema broadcasting means.

According to yet a further aspect of the present invention said apparatus further includes programming means coupled to said activation means and arranged for programming said predefined signal and said predefined information.

According to an aspect of the present invention said display means may be a liquid crystal display.

According to an aspect of the present invention said activation means may be an application specific integrated circuit.

According to yet another aspect of the present invention said apparatus further includes an analogue to digital interface means, a programmable digital processor and battery means.

Said battery means may be a button cell type battery.

According to an aspect of the present invention said predefined information may be an advertisement. Alternatively, said predefined information may be a message.

According to a further aspect of the present invention there is provided a method for displaying information, said method including the steps of receiving a signal, comparing said received signal with a predefined signal, and upon said received signal matching said predefined signal, displaying predefined information.

According to a further aspect of the present invention said method includes the further step of programming said predefined signal and said predefined information.

According to yet a further method aspect of the present invention said received signal is an acoustic signal.

According to yet a further method aspect said received signal is a commercially broadcast signal.

While the principle advantages and features of the invention have been described above, a greater understanding and appreciation of the invention may be obtained by referring to the drawings and detailed description of the preferred embodiment, presented by way of example only, in which;

Figure 1 shows the display means of an acoustically activated marketing device according to one aspect of the present invention,

Figure 2 shows the electronic layout of an acoustically activated marketing device according to one aspect of the present invention.

In Figure 1 an acoustically activated marketing device (10) is shown comprising a low-cost display (12). The display (12) may be a liquid crystal display (LCD). As will be appreciated by those skilled in the art, alternative display means may be used, such as a light emitting diode (LED) or a thermo-cromic display. The device (10) operates such that upon detection of a predefined signal the display (12) displays predefined information. This information may be an advertisement such as a cocktail glass (14). As will be appreciated by those skilled in the art, other types of predefined information can be displayed such as a message. As will be appreciated, the message may be an indication that a prize has been won.

In Figure 2 the electronics layout (20) of an acoustically activated marketing device (10) is shown. In this aspect of the present invention the electronics layout includes a microphone element (22) connected to an A/D interface (24). The microphone elements operate to detect a predefined acoustic signal. The device (10) further includes a programmable digital processor (26) which allows for a variety of acoustic signals and corresponding display information to be programmed into the device. Thus a single device can be mass-produced and then programmed in the factory to satisfy a variety of different customer's needs.

The device (10) further comprises a battery source (28). In this embodiment of the present invention the battery source is a button type battery.

As will be appreciated, when the predefined information is displayed the consumer may be in an area of high noise, for example; in the midst of

conversation in a cinema or at home, or when driving in a car. This noise may mask the predefined signal and prevent the display means from being activated. Ideally, this should not be greater than 1 non-activation out of 10 or 20 occasions.

As will be appreciated, while the consumer is wearing the badge, it will be subject to many different sources of noise, for example; conversation, music and car noise. These could, by chance, contain a sequence of sounds that are sufficiently like the predefined signal to trigger the device. The probability of this type of 'false alarm' occurring can be reduced by increasing the complexity of the predefined signal, but this may be at the expense of battery life or badge cost. Ideally, less than 1 in 100 badges should be unintentionally activated during their lifetimes.

The required operating lifetime of the badge is expected to be application-dependent. Long operating lifetimes will require higher cost batteries or lower power circuits.

To minimise the production cost, an application specific integrated circuit (ASIC) can be developed. To reduce packaging costs the ASIC can be directly mounted on the printed circuit board and then protected from the atmosphere by a layer of plastic. For this type of ASIC to be viable, large production runs will be necessary. The requirement for such runs will make it more difficult to adapt the ASIC to a different application. Some degree of programmability may be possible, however this may require the use of a more expensive production process.

As will be appreciated by those skilled in the art, various modifications may be made to the embodiment hereinbefore described without departing from the scope of the present invention.



**CLAIMS**

1. Apparatus for displaying information, said apparatus including receiving means arranged to receive a signal, activation means arranged to compare said received signal with a predefined signal and upon said received signal matching said predefined signal cause a display means to display predefined information.
2. Apparatus as claimed in Claim 1, wherein said received signal is an acoustic signal.
3. Apparatus as claimed in Claim 2, wherein said receiving means is a microphone.
4. Apparatus as claimed in any preceding Claim, wherein said received signal is in digital format.
5. Apparatus as claimed in Claim 4, wherein said received signal is transmitted over the internet.
6. Apparatus as claimed in any preceding Claim, wherein said received signal is broadcast by a commercial broadcasting means.
7. Apparatus as claimed in Claim 6, wherein said commercial broadcasting means is television broadcasting means.

8. Apparatus as claimed in Claim 6, wherein said commercial broadcasting means is radio broadcasting means.
9. Apparatus as claimed in Claim 6, wherein said commercial broadcasting means is cinema broadcasting means.
10. Apparatus as claimed in any preceding Claim, wherein said apparatus further includes programming means coupled to said activation means and arranged for programming said predefined signal and said predefined information.
11. Apparatus as claimed in any preceding Claim, wherein said display means is a liquid crystal display.
12. Apparatus as claimed in any preceding Claim, wherein said activation means is an application specific integrated circuit.
13. Apparatus as claimed in any preceding Claim, wherein said apparatus further includes an analogue to digital interface means, a programmable digital processor and battery means.
14. Apparatus as claimed in Claim 13, wherein battery means is a button cell type battery.
15. Apparatus as claimed in any preceding Claim, wherein said predefined information is an advertisement.

16. Apparatus as claimed in any of Claims 1-15, wherein said predefined information is a message.
17. Method for displaying information, said method including the steps of:
  - receiving a signal,
  - comparing said received signal with a predefined signal, and upon said received signal matching said predefined signal,
  - displaying predefined information.
18. Method as claimed in Claim 17, wherein said method includes the further step of :
  - programming said predefined signal and said predefined information.
19. Method as claimed in Claims 17 or 18, wherein said received signal is an acoustic signal.
20. Method as claimed in any of Claims 17 - 19, wherein said received signal is a commercially broadcast signal.
21. Apparatus as hereinbefore described with reference to the accompanying drawings.

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Application No: GB 9907626.7  
Claims searched: 1-21

Examiner: John Betts  
Date of search: 20 August 1999

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## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): G4F (FAA, FAB, F14) G5C (CAB, CAD)

Int Cl (Ed.6): G09F 3/00 9/33 9/35 9/307 9/30 ; G08B 5/02 5/36 5/38

Other: On-line: WPI, EPODOC, JAPIO

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB2135536 A (Wobbot Int) whole document	1-3, 6-9, 17, 19-20
X	US4514725 (Bristley) whole document	1-3, 11, 16, 17, 19
X	US4237449 (Zibbell) whole document	1-3, 17, 19

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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